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*Johns*  
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*Can. Mining*  
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OCTOBER, 1894.

# Insulating Materials.

## VULCABESTON

CONTROLLER PARTS,  
FIELD SPOOLS,  
BUSHINGS, ETC.

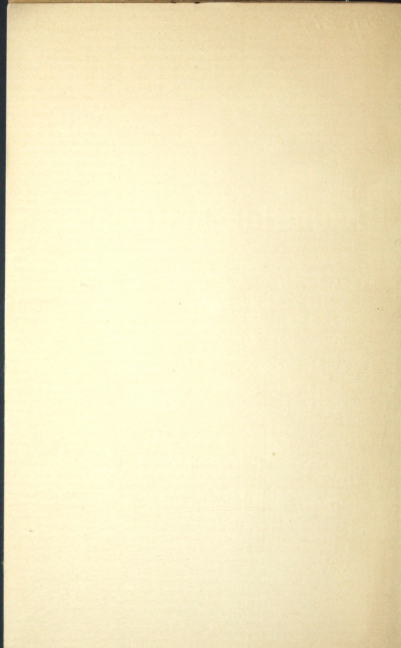
## MOULDED MICA

TROLLEY LINE INSULATORS,  
WEATHER-PROOF SOCKETS, ETC.

H. W. JOHNS M'F'G CO.,

170 & 172 NORTH 4th ST., PHILADELPHIA.

NEW YORK.  
JERSEY CITY. CHICAGO.  
PHILADELPHIA BOSTON.  
LONDON.





## INSULATORS.

(MANUFACTURED BY THE JOHNS-PRATT CO.)

**Moulded Mica** is a compound possessing the highest electrical insulating qualities. It has become well known through its universal use in the insulation of electric trolley lines during the past seven years. It is also largely used for incandescent lamp sockets, switch bases, cut outs, bases for instruments, magnet spools, bushings, etc.

**"Monarch"** insulating material is black in color and possesses great heat resistance. Owing to its superior strength and durability, it is valuable for bushings, washers and special insulating parts. Like Moulded Mica, it is made in moulds, under great pressure, and is suitable for similar purposes.

**Vulcabeston**, for electrical purposes, see pages 26 to 30.

**Asbestos**, and its applications for electrical insulating and fire-proofing, is referred to on page 31.

A complete list of the goods manufactured by us will be found on page 32.

H. W. JOHNS MANUFACTURING CO.,  
*Selling Agents.*

10490-B5870

## LINE INSULATORS.

## No. 1 BELL HANGER.

This is the well-known Moulded Mica bell insulator now in general use.

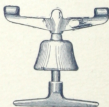
No. 1, bell insulator, with malleable iron yoke and hinged ear, for 4 B. W. G. trolley wire, complete..	95c.
No. 2, Bell.....	50c.
No. 3, Malleable iron yoke.....	15c.
No. 601, Ear and stem ( $\frac{7}{8}$ inch screw stud) 4 B. W. G.	30c.

## SALEM BELL HANGER.

The Salem Bell is larger than the No. 1 Bell. It is made of Moulded Mica, and is adapted for heavier construction.

No. 20, Salem Bell Hanger, complete (ear No. 610).....	\$1.75
No. 24, " " Feed-In Hanger, complete.....	1.75
No. 25, " " with $\frac{1}{2}$ inch screw threads.....	.80
No. 30, Yoke, brass, with bolt, complete.....	.40

## IRON CLAD BELL HANGER.



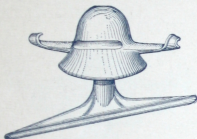
This bell is a small but very efficient line insulator. The shell is made of malleable iron with fittings of same size as our No. 1 Bell. This hanger is insulated with Moulded Mica and combines maximum strength with minimum size.

No. 51, Complete, for No. 4 B. W. G. with hinged ear, No. 601.....	80c.
No. 52, Complete, for 6 B. & S., with hinged ear No. 602..	90c.
No. 55, Iron Clad Bell, alone.....	40c.

## LINE INSULATOR.

## "ROUND TOP" HANGER.

(PATENTED.)



An exceedingly strong form of insulator in metal shell, which thoroughly protects the Moulded Mica insulation from blows of the trolley wheel. The screw stud is  $\frac{3}{8}$  inch steel.

This insulator is a standard and has been largely used by prominent street railway companies and engineers.



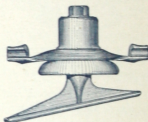
No. 100, "Round Top," mall. iron shell, without ear.....	\$ .80
No. 110, "Round Top," brass shell, without ear.....	1.15
No. 112, "Round Top," Feed In Hanger, brass, without ear.....	1.65

For list of Ears and Mechanical Clips, see pages 10 and 11.

## LINE INSULATOR.

## 7-16 INCH SWIVEL HANGER.

(PATENTED.)



This hanger offers specially valuable features as a Trolley Insulator. The steel screw stud ( $\frac{7}{16}$ -inch) is firmly imbedded in and extends from solid Moulded Mica Insulation. The Malleable iron Skirt (insulated on the under side to afford ample surface insulation) protects the insulation from blows of the trolley wheel.

A loose yoke fitting a groove in the metal shell facilitates the easy attachment and adjustment of the hanger to the span wire and permits the ear to be screwed to a shoulder.

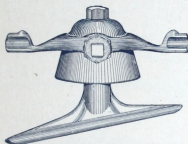
No 130,	$\frac{7}{16}$ -inch Swivel Hanger, without ear.....	\$ .65
No. 131,	“ with 7-inch ear, No. 605.....	.93

For list of Ears and Mechanical Clips, see pages 10 and 11.

## LINE INSULATOR.

## 5-8 INCH SWIVEL HANGER.

(PATENTED.)



The mechanical features of this hanger are similar in principle to those of the  $\frac{7}{8}$ -inch Swivel Hanger, and possess similar advantages. The swivelled collar permits the insulator to be screwed to a shoulder and assures a rigid connection between hanger and ear.

The hanger is insulated thoroughly with both sheet mica and Moulded Mica, and all parts are designed for durability and the strongest construction. Furnished from stock with  $\frac{3}{8}$ -inch steel screw-stud.

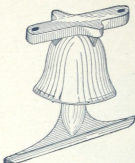
No. 140,  $\frac{3}{8}$ -Inch Swivel Hanger, without ear..... 90c.

For list of Ears and Mechanical Clips, see pages 10 and 11.

## LINE INSULATOR.

## ROUND TOP BARN HANGER.

(PATENTED.)



This Barn Hanger embodies the features of the Round Top Hanger, and possesses similar advantages. It is insulated with Moulded Mica and is adapted for the heaviest construction. The drop of the Trolley wire below the beams is about five inches. Furnished from stock with  $\frac{3}{8}$  inch steel screw stud.

No. 208, Round Top Barn Hanger, without ear.....90c.

## SOCKET BARN HANGER.

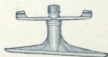
This Barn Hanger consists of a cast iron socket and a long stud insulated with Moulded Mica.

No. 200, Socket Barn Hanger,  $\frac{1}{2}$  in. stud, without ear.....90

No. 204, Socket Barn Hanger,  $\frac{3}{8}$  in. stud, without ear.....90



## FEED-IN HANGER.



For span wire composed of feed wire. Consists of uninsulated yoke and ear.

No. 241, with 9-in. ear, No. 615,  $\frac{1}{2}$ -in. Stud.....\$ .80

No. 30, Yoke, brass, with  $\frac{1}{2}$  in. bolt, complete.....40

For list of Ears and Mechanical Clips, see pages 10 and 11.

### SINGLE GIANT PULL-OVER.

(PATENTED.)



No. 343. Single Giant pull-over, without ear.....	‡ .85
No. 344. " " " " with ear, No. 620.....	1.25

### DOUBLE GIANT PULL-OVER.

(PATENTED.)



No. 353, Double Giant pull-over, without ear.....	\$1.50
No. 354, " " " " with ear, No. 620.....	1.90

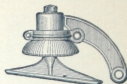
WITH HORIZONTAL JAWS.

No. 345, Single Giant pull-over, without ear.....	\$ .90
No. 355, Double " " " " " ".....	1.60

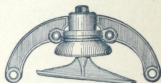
These pull-overs consist of a substantial malleable iron yoke, adjusting bolt for attaching ear in any desired position, and No. 2 Giant strain insulators for strain-wire attachments. They are suitable for constructions of the strongest and most permanent character.

For List of Bars and Mechanical Clips, see pages 10 and 11.

## SWIVEL PULL-OVERS.



- No. 310, Single Swivel Pull-over, without ear..... \$ .80  
 No. 311, " " " " with ear, No. 605..... 1.08



- No. 315, Double Swivel Pull-over, without ear.....\$1.00  
 No. 316, " " " " with ear, No. 605..... 1 28

NOTE.—See cut and description of the  $\frac{7}{8}$  inch Swivel Hanger, page 4. The Swivel Pull-overs are similar in construction and possess all the valuable characteristics of the Swivel Hanger.

## BRACKET ARM HANGER.

Consisting of a solid sleeve with two set screws and hinged Round Top bell, similar to that illustrated on page 9.

Furnished only for  $1\frac{1}{4}$  inch pipe arm,  $\frac{5}{8}$  inch stud.

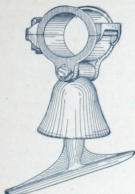
- No. 460, Hanger, complete, without ear.....\$1.25

For list of Ears and Mechanical Clips, see pages 10 and 11.



**BRACKET ARM INSULATOR.**

HINGED SLEEVE, WITH ROUND TOP BELL.



This Bracket Arm Hanger is a Round Top bell, hinged to the malleable iron sleeve, as illustrated, to provide a flexible attachment between trolley wire and hanger. Provision is thus made for the play of the trolley wire, and the shock of the passing trolley wheel is deadened.

The sleeve has a hinged cap and is attached to the arm by a single bolt.

This hanger can be used on curves.

Furnished from stock with  $\frac{5}{8}$ -inch screw stud.

**FOR 1½-INCH PIPE ARM.**

No. 451, Hinged Sleeve Bracket Arm Hanger, without  
ear..... \$1.25

**FOR 2-INCH PIPE ARM.**

No. 456, Hinged Sleeve Bracket Arm Hanger, without  
ear..... \$1.35

For List of Ears and Mechanical Clips, see pages 10 and 11.

**BRACKET ARM INSULATOR.****SPLIT SLEEVE FOR SINGLE OR DOUBLE INSULATION.**

This is a rigid hanger and is designed for the omission or insertion of an insulating sleeve between the metal sleeve of the hanger and the bracket arm, thus providing for a double insulation, if desired. Kept in stock with  $\frac{3}{8}$  inch screw stud.

Specify whether hanger is wanted for single or double insulation.

**FOR 1½-INCH PIPE ARM.**

No. 500, Split Sleeve Bracket Arm Hanger, without ear..\$1.50

**FOR 2-INCH PIPE ARM.**

No. 530, Split Sleeve Bracket Arm Hanger, without ear..\$1.50

**EARS.**

Our trolley ears for soldering are constructed with deep groove, thoroughly tinned, full length of ear. The deep groove is a valuable feature, as the trolley wire is held with exceptional security.

No. 605,	Plain Ear,	7 in. long,	$\frac{7}{16}$ in. stud (swivel).....	\$ .28
No. 615,	"	9 " " "	$\frac{5}{8}$ " " (straight line).....	.40
No. 620,	"	9 " " "	$\frac{5}{8}$ " " (pull-over).....	.40
No. 625,	"	15 " " "	$\frac{5}{8}$ " " (straight line).....	.50
No. 630,	"	15 " " "	$\frac{5}{8}$ " " (pull-over).....	.50
No. 631,	"	15 " " "	$\frac{5}{8}$ " " { Pound-on straight line }	.50
No. 632,	"	15 " " "	$\frac{5}{8}$ " " { Pound-on pull-over }	.50

NOTE.—The "Pound-on" ears are furnished with extra deep groove, not tinned, for bending or pounding on over trolley wire.

## STRAIN EARS.



- 650, Strain Ear, 12 in. long,  $\frac{7}{8}$ -in. stud (swivel).....\$ .60  
 652, " " 15 " "  $\frac{3}{8}$  " " (standard)..... .80

## FEED-IN EARS.



- 660, Feed-in Ear, 9 in. long,  $\frac{7}{8}$ -in. stud (swivel).....\$ .50  
 662, " " 10 " "  $\frac{3}{8}$  " " (standard)..... .60

## SPLICING EARS.



- 680, Splicing Ear, 15 in. long,  $\frac{7}{8}$ -in. stud.....\$1.00  
 682, " " 15 " "  $\frac{3}{8}$  " " ..... 1.00

THE "H. W. J." MECHANICAL CLIP.  
(PATENTED.)

This clip consists of a single casting and is easily attached by simply springing the trolley wire into place. It is a cheap and effective device and works practically without sparking.

- No. 710, "H. W. J." clip,  $\frac{7}{8}$  inch stud, brass..... 55c.  
 No. 712, " " "  $\frac{3}{8}$  " " " ..... 55c.

THE PERRY MECHANICAL CLIP.  
(PATENTED.)

This clip is simple in construction and has several novel features. The wire is firmly held in place and is not apt to leave the clip in case the trolley wire breaks.

- No. 705, Perry Mechanical Clip,  $\frac{5}{8}$ -inch screw stud.....\$ .90

**GUARD-WIRE INSULATOR.**

(PATENTED.)



This Moulded Mica insulator carries the guard wires, and is the strongest and most compact device ever offered for this purpose.

No. 750 Guard-wire Hanger..... 20c.

**GUARD-WIRE PULL-OFFS.**

These are compact and strong and make a very neat "line." The insulation consists of a solid globe of "Monarch" Material.



No. 762, Single Guard Wire Pull-over..... 20c.

No. 763, Double " " " "..... 25c.

**GLOBE STRAIN INSULATORS.**

(PATENTED.)

The medium size Globe Strain Insulator serves for the lighter guys and the small size for cutting out lengths of guard wire, etc.

Furnished in "Monarch."



No. 809, Medium Globe Strain, 2 inches diameter..... 40c.

No. 810, Small " " 1 1/4 " "..... 25c.

N. B.—The No. 1 and No. 2 Giant Strain Insulators (see pages 14 and 15) have taken the place of the Large Globe formerly sold.

**GLOBE STRAIN INSULATORS,****WITH CLEVIS.**

(PATENTED.)



These are the same as our Globe Strains made with clevis for attachment to overhead switches, etc.

Furnished in "Monarch."

No. 821, Large Globe Strain, with clevis..... 65c.

No. 822, Medium " " " "..... 50c.

**BROOKLYN STRAIN INSULATOR.**

This Strain Insulator is powerful and durable, has three inches take-up, and is especially recommended for the insulation of span wires. The fixed eye is  $\frac{3}{4}$  inch diameter for attachment to bolt in pole strap. The insulation is Moulded Mica. Furnished in both malleable iron and brass.

No. 803,	Brooklyn Strain Insulator, brass.....	\$1.65
No. 804,	“ “ with Clevis end, brass.....	1.90
No. 805,	“ “ Insulator, malleable iron.....	1.00
No. 806,	“ “ with clevis, “ “ .....	1.25

★ **BROOKLYN STRAIN WITH FEEDER  
ATTACHMENT.**

(PATENTED.)



This insulator affords a reliable double insulation for feed wire spans. It consists of the Brooklyn Strain with clevis-end, and the No. 1 Giant Strain Insulator, with large eye.

No. 838,	Brooklyn Strain with Feeder Attachment, with brass Brooklyn Strain.....	\$2.50
No. 840,	Brooklyn Strain with Feeder Attachment, with malleable iron Brooklyn Strain.....	2.00

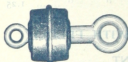
**No. 1 GIANT STRAIN INSULATORS.**

(PATENTED.)



The Giant Strain Insulators have become standards in the market, having largely superseded other forms for similar purposes. Sheet Mica furnishes the insulation for all parts under strain; other parts and the exterior are insulated with Moulded Mica. Average breaking strain 6,500 lbs.

No. 830, No. 1 Giant Strain insulator.....	60c.
No. 831, " " " " " with $\frac{5}{8}$ -in. nut one end...	75c.
No. 841, " " " " " " both ends..	80c.

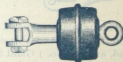
**No. 1 GIANT STRAIN WITH LARGE EYE.**

The small eye will take a  $\frac{1}{2}$ -inch bolt; the large eye is  $\frac{3}{8}$ -inch diameter.

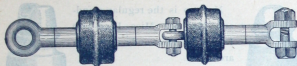
No. 832, No. 1 Giant, with large eye one end.....	\$ .85
No. 842, " " " " " both ends.....	1.25
No. 843, " " " " " and $\frac{3}{8}$ -inch nut.....	1.05
No. 846, " " " " " and clevis.....	1.30

**No. 1 GIANT STRAIN WITH CLEVIS.**

The jaws of the clevis have a spread of  $\frac{3}{8}$ -inch; the bolt is  $\frac{1}{2}$ -inch diameter.



No. 834, No. 1 Giant, with clevis one end.....	\$ .90
No. 847, " " " " " both ends.....	1.35
No. 848, " " " " " and $\frac{3}{8}$ -inch nut.....	1.10
No. 846, " " " " " and large eye.....	1.30

**No. 1 GIANT STRAIN FEED-IN INSULATOR.**

Consists of a special combination of No. 1 Giant Strain Insulators, thus providing a substantial double insulation for span wire, composed of feed wire.

No. 844, No. 1 Giant Double Feed-In Insulator..... \$2.20

**No. 2 GIANT STRAIN INSULATOR.**

(PATENTED.)



This insulator is similar in construction to the No. 1 Giant Strain Insulator. It is smaller in size. Average breaking strain, 5,000 lbs.

No. 826, No. 2 Giant Strain Insulator.....	\$ .50
No. 823, with ½-inch nut one end.....	.55
No. 824, " " " both ends.....	.65
No. 825, " clevis one end.....	.80
No. 827, " " both ends.....	1.05
No. 828, " large eye .....	.75
No. 829, " " both ends.....	.95
No. 850, " ½-inch nut and clevis.....	.80
No. 851, " " " large eye.....	.80
No. 852, " clevis and large eye.....	.95

## FEED-WIRE INSULATORS.



No. 900.

No. 900 is the regular standard Moulded Mica Feed-wire Insulator, thousands of which are in use.



No. 902.

No. 902 is an extra large and strong moulded mica pole insulator with a groove at top. This is especially designed for the carrying of large-sized feed-wires. Threaded for one inch standard pin.

No. 900,	No. 1,	plain Pole insulator.....	75c.
No. 901,	No. 2,	"Top Groove" 1½ in. diameter.....	90c.
No. 902,	No. 3,	" " 1¼ in. " .....	90c.

## IRON-CLAD FEED-WIRE INSULATOR.



No. 904.

Nos. 904, 905 and 906, consist of malleable iron shells insulated with Moulded Mica.

They are very strong and durable, and provide a long, safe bearing for feed-wires from 0000 B. & S., up to



No. 905.

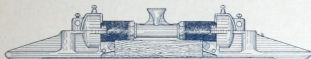
500000 C. M. Threaded for one inch standard pin.

No. 904,	No. 1,	"Iron-Clad," plain top.....	70c.
No. 905	No. 2,	" " 1¼ inch top groove.....	75c.
No. 906,	No. 3,	" " ¾ " " " .....	75c.



## SECTION INSULATORS.

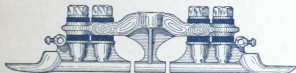
## THE EMERSON.



Has a straight under-run for trolley wheel and a wood insulated break nine inches long. It is also insulated with our Brooklyn strain insulators, thus providing high insulation with great strength.

No. 950, The Emerson Break, for  $\frac{3}{8}$ -in. screw stud..... \$11.25

## THE GRAUTEN.



Has a straight under-run. Insulated with sheet mica bushings and washers and proportioned for severe strains.

Blue prints furnished on application.

No. 952, The Grauten Break, for  $\frac{3}{8}$ -in. screw stud..... \$10.00

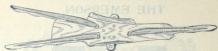
## THE PHILADELPHIA.



This insulator has a fibre insulated break eight inches in the clear. It is light in weight and has proved its efficiency on the "line."

No. 954, Philadelphia Break, for side wire attachment... \$6.50

No. 955, " " with  $\frac{3}{8}$ -inch socket for attachment to hanger..... 6.50

**" NOISELESS " FROG.**

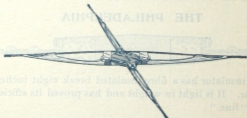
These frogs are designed to prevent pounding and arcing when the trolley wheel becomes worn. Designed to meet the practical requirements of the line.

No. 960, " Noiseless " Frog, right hand.....	\$4.00
No. 961, " " left hand.....	4.00
No. 962, " " standard.....	4.00

**CROSSINGS.**

Plain brass right angle and adjustable Crossings, light and strong, simple in construction, with ample run-ways for fast speeds.

No. 966, Right angle crossing.....	\$3.80
No. 968, Adjustable " .....	4.30

**★ ALLEN INSULATED CROSSING.**

Is readily put in place without cutting the trolley wires. Is light in weight and an efficient insulator.

No. 970, Allen Insulated Crossing, complete with hood...	\$14.00
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## ★ PHILADELPHIA INSULATED CROSSINGS.



These crossings are insulated with fibre painted with an insulating compound, and follow the principals of construction successfully utilized in the Philadelphia break. They are light and strong, are readily put on the "line" and require no cutting of the trolley wires.

No. 969, The Phila. right angle insulating crossing..... \$18.00

No. 970, " " adjustable " ..... 21.00

## THE GRAUTEN RAIL BOND.



This is a convenient, simple and permanent bond. It is made of composition metal and is furnished with single or double grooves for bonding with single or double oo B. & S. wire. The hub is  $\frac{3}{4}$ -inch diameter, and is cup shaped for rivetting. The double groove form is also furnished without the hub for independent wire-connections.

Grauten rail bond, single groove..... 10c.

" " " double " ..... 10c.

" double groove wire connector..... 10c.

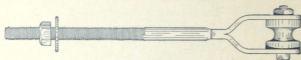
Special prices quoted for quantity orders.

### EYE BOLTS.



Plain or galvanized, complete with washer and nut. State number wanted and give size of eye, diameter and length of bolt and length of screw-thread desired. Prices quoted on application.

### FORKED BOLTS.



For either Iron or wood poles. Furnished complete with porcelain insulator. Regular sizes  $\frac{3}{8}$  and  $\frac{3}{4}$ -inch diameter, from 12 to 15 inches long under forked end. Prices on application.

### TURNBUCKLES.

Plain or galvanized, with from 6 to 12 inches take-up. State whether wanted with eyes or hooks both ends, or whether with a hook and eye. Also furnished with threaded end for attachment to our Giant Strain Insulators.

### BRACKET ARMS.

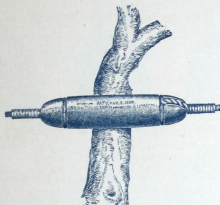
For wood poles. With plain  $1\frac{1}{2}$  or 2-inch pipe arm and  $1\frac{1}{4}$  or  $1\frac{1}{2}$ -inch adjustable brace, complete with plates and lag screws for attaching to pole.

Also bracket arms with flexible span wire feature for relieving the shock caused by the passage of trolley wheel.

We are prepared to furnish all parts necessary for the proper insulation of the trolley and feed wire.

## TREE INSULATOR.

(HAWKEN PATENT.)



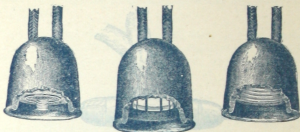
This insulator offers a valuable protection against the dangers and losses which result from the abrasion of electric light and feeder wires. It is made of Moulded Mica, in halves, and is readily attached to the wire and held in place, as illustrated in the cut. The insulation of the wire is thus preserved indefinitely and all danger averted. Thousands in use by electric railway and lighting companies.

No. 1001,	For wire not over $\frac{3}{8}$ -inch dia.	over insulation..	30c.
No. 1002,	" " " " $\frac{5}{8}$ " " "	" ..	40c.
No. 1003,	" " " " $\frac{3}{4}$ " " "	" ..	50c.
No. 1005,	" " " " $1\frac{1}{4}$ " " "	" ..	85c.

NOTE: The above sizes of Tree Insulator are usually adapted for the following sizes of insulated wire:

Size $\frac{3}{4}$ inch for	No. 6 B. & S.
" $\frac{5}{8}$ " "	00 "
" $\frac{3}{4}$ " "	0000 "
" $1\frac{1}{4}$ " "	500000 C. M.

## ★ MOULDED MICA WEATHER-PROOF KEYLESS LAMP SOCKETS.



These sockets are waterproof on top, and by the use of a suitable packing, a water tight joint is easily effected at the lower opening. Sockets furnished either brown or black. Thousands in use in paper mills, breweries, laundries, tunnels and other damp situations. These sockets will be furnished with lead covered wires at an additional cost, if desired. They are not recommended for a temperature greater than 125° F.

Extra lengths of leads longer than 18 inches are furnished only with Thomson-Houston base.

Price of Sockets with 6 in. leads..... 25c.

## PRICES OF SOCKETS, WITH EXTRA LENGTH WIRES.

(THOMSON-HOUSTON BASE.)

Sockets, with wires 6 inches long, each.....				\$0.25
"	"	12	"	..... .27 1/2
"	"	18	"	..... .30
"	"	24	"	..... .35
"	"	30	"	..... .40
"	"	3 feet	"	..... .45
"	"	4	"	..... .55
"	"	5	"	..... .65
"	"	6	"	..... .75
"	"	7	"	..... .85
"	"	8	"	..... .95
"	"	10	"	..... 1.15

**MOULDED MICA LAMP SOCKET.****FOR BRACKET FIXTURE.**

Threaded for standard  $\frac{1}{8}$ -inch pipe. Furnished in brown or black with Thompson-Houston and Edison bases and 6-inch leads; longer lengths of lamp cord, extra.

Price..... 50c.

**MOULDED MICA WALL SOCKET.****FOR SIGN AND DECORATIVE WORK.**

Furnished in brown and black, with Edison base only.

Price..... 40c.

**★ MOULDED MICA ROSETTE CUT-OUT.**

(SMITH PATENT.)

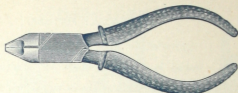
Made in brown and black.

Price..... 25c.

**SPECIAL INSULATION.**

We are prepared to supply our insulating materials for various purposes, such as handles for tools, socket keys, screw drivers, wrenches, special pieces, etc., and will furnish estimates for the most desirable forms for special requirements.

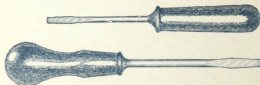
## ★ INSULATED PLIERS.



The above cut is furnished by Messrs. Peck, Stowe & Wilcox, of Southington, Conn., with whom we have made exclusive arrangements for the manufacture of Moulded Mica Insulated Pliers.

6 inch. Safety Side Cutting Pliers, per doz.....	\$25.00
7 " " " " " " " " .....	33.00
8 " " " " " " " " .....	40.00
7 " " Insulated Gas " " " " .....	15.00

## ★ "VULCAN" INSULATED SCREW-DRIVERS.



MANUFACTURED FOR THE CLEMENT M'F'G CO., NORTHAMPTON, MASS.

Sizes:	2½ in.	3½ in.	4 in.	5 in.	6 in.
Price:	\$6.00	\$7.00	\$8.00	\$12.00	\$13.50 per dozen.

The above tools are for the use of Linemen, Electricians and others who have to do with electrical machinery and the handling of heavily charged wires. The Moulded Mica Insulation, with which the handles are covered, is intrinsically one of the best insulators known. It offers the greatest protection possible with tools of this character when properly used. Every electric car and lighting and power station should be constantly provided with these insulated tools.



## MOULDED MICA INSULATORS.

### SPECIAL FORMS.



These and other special forms manufactured to order only.

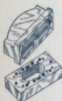


## RAILWAY CONDUIT INSULATORS.

Moulded Mica is used for insulating electric wires throughout the most prominent conduit railway systems.



## "MONARCH" INSULATING MATERIAL.



"Monarch" is a hard, black composition which has been most successfully used for the moulding of switch blocks, covers, sockets, bushings, and special pieces requiring accuracy and permanency of dimension and finish. The material is not liable to warp, swell or shrink with ordinary changes of temperature, and is therefore valuable for the above and other purposes. Suitable for temperatures under 250°F.

## VULCABESTON.

(PATENTED.)

Vulcabeston is composed principally of Asbestos and India Rubber, vulcanized. It is exceedingly tough and strong, dense, non-absorbent, resists heat to a high degree, possesses great mechanical resistance to blows and pressure, and is readily manufactured in the forms most useful for electrical purposes.

Vulcabeston is acknowledged to be the standard insulating material for the insulation of dynamos, motors, arc lamps, converters, street car controllers, switches, rheostats, thermostats, and various forms of electrical apparatus. Its qualities recommend it for such insulating parts as magnet spools, bushings, washers, commutator rings and sleeves, controller parts, and numerous irregular shapes for special requirements. One of the most valuable applications of Vulcabeston is its utilization for the covering of armatures, thus affording the most perfect insulation.

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**Vulcabeston Packing**, for steam and other purposes, is also a standard article. This is composed materially as above described, with the addition of lubricants, which render it pliable and yielding.

For further description and prices, see special pamphlet.



(PATENTED.)

## FOR ELECTRICAL PURPOSES.

As this material is moulded into the various forms in which it is required, the drilling and turning necessary in most of the materials now used for electrical work are avoided.

All pieces herein described are moulded to order. Prices will be furnished upon application accompanied with full particulars.

Samples for testing furnished upon request.

## VULCABESTON INSULATING SHEETS.

We supply Vulcabeston in sheets, 34x34 in., and any desired thickness from  $\frac{1}{16}$  inch to one inch.

$\frac{1}{4}$ -in. thick and upward, per lb.....	\$1.00
$\frac{1}{8}$ -in. thick and less than $\frac{1}{4}$ , per lb.....	1.25
$\frac{3}{16}$ -in. thick and less than $\frac{1}{8}$ , per lb.....	1.50
Less than $\frac{3}{16}$ -in., sheets 12x12 in., per sheet.....	.50

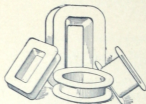
The approximate weights, per sheet, are as follows:

$\frac{1}{16}$ inch, 2 $\frac{3}{4}$ lbs.	$\frac{1}{8}$ -inch, 13 lbs.
$\frac{1}{8}$ " 5 "	$\frac{1}{4}$ " 16 "
$\frac{3}{16}$ " 6 "	$\frac{3}{8}$ " 26 "
$\frac{1}{2}$ " 8 $\frac{1}{2}$ "	$\frac{1}{2}$ " 30 "

These insulating sheets are used for lining cut-out boxes and rheostats, for switch bases, insulating armature grooves and sections, for fire-proofing electrical apparatus, &c.

## VULCABESTON FIELD MAGNET SPOOLS.

FOR GENERATORS AND MOTORS.



Vulcabeston Magnet Spools are among our most valuable products. They consist entirely of an insulating material, possessing great mechanical durability and toughness.

Many thousands of these spools have been used in stationary and Street Car Motors.

## VULCABESTON BUSHINGS, WASHERS AND LAMP INSULATION.

Vulcabeston is tough and strong, neither swells nor shrinks, is exceptionally heat-proof and is very durable. For these reasons it is peculiarly valuable for brush holder and other bushings, washers and other parts in dynamos, motors, arc lamps, and other electrical apparatus, where the insulation is subject to mechanical strain.



## COMMUTATOR RINGS AND SLEEVES.

These parts have been largely used for the insulation of dynamos and motors and are among our most valuable products.



## VULCABESTON CONTROLLER PARTS.



One of the most noteworthy acknowledgments of the superiority and practical ability of Vulcabeston to meet the severest requirements has been its unanimous adoption of the Street Car Controllers

for the complete insulation of the several manufacturers.

### PRICE LIST OF

## VULCABESTON INSULATING PIECES.

### Vulcabeston Parts of Westinghouse Motors and Controllers.

#### PARTS No. 12 MOTORS.

P 950,	Vulcabeston Brush Holder Bushing, to insulate arm from motor casting, per set of two halves..	\$1.74
P 3,	Vulcabeston Ring for end of commutator.....	1.80

#### PARTS No. 3 MOTORS.

P 3,	Vulcabeston Commutator Ring.....	1.80
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#### No. 14 CONTROLLER PARTS

P 145,	Vulcabeston piece.....	.99
P 146,	" ".....	2.85
P 149,	" ".....	1.14
P 151,	" ".....	1.35
P 421,	" Reversing Switch Back, complete,	9.60

#### "D" CONTROLLER PARTS.

P 100,	Vulcabeston Disc.....	1.20
P 101,	" Partition.....	.99
P 104,	" Plate.....	2.70

#### "G" CONTROLLER PARTS.

P 100,	Vulcabeston Disc.....	1.20
P 101,	" Partition.....	.99
P 103,	" Base-board.....	4.35
P 104,	" Plate.....	2.70
P 122,	" with Contact Pieces, each.....	2.22
P 125,	" " " ".....	2.13
P 126,	" " " ".....	2.49
P 798,	" Reversing Switch Base, complete,	5.94
P 799,	" Drum.....	3.27

**VULCABESTON PARTS FOR MOTORS AND  
CONTROLLERS OF  
THE GENERAL ELECTRIC CO.**

S 5058, Brush Holder Bushings, for Edison Motors...	\$ .75
G. E. No. 800, Commutator Ring.....	2.25

**VULCABESTON FIELD MAGNET  
SPOOLS.**

S 5002, Spool for No. 6, S. C. Motors.....	2.50
S 5003, " " " 8, .....	2.50
S 5005, " " " 12, N. S., S. C. Motors.....	9.60
S 5006, " " " 14, O. S., " " .....	7.90
S 5007, " " " 14, N. S., " " .....	6.75
S 5005, " " " 16, N. S., " " .....	9.60

**VULCABESTON CONTROLLER PARTS.**

**For Type "E" Controller.**

S 136, Wide Strip.....	1.00
S 137, Narrow " .....	.50
S 138, Arc Arrestors.....	.30
S 139, End. Shields.....	.63
S 140, Spool.....	2.00

**For Type "K" Controller.**

S 148, Spool.....	1.90
S 153, Broad Strip.....	1.50
S 154, Narrow " .....	.55
S 155, Arc Arrestors.....	.40

# ASBESTOS

Asbestos has had universal application in the electrical, chemical and mechanical arts. It is unique in its fire and acid-proof qualities, which render it peculiarly valuable for many purposes. It is also an insulator of electricity, and in the manufacture of electrical apparatus, such as dynamos, motors, arc lamps, switches, rheostats, etc., its insulating, heat-resisting and fire-proof qualities are utilized to great advantage. For these purposes we furnish Asbestos in the forms of a sheathing or paper, mill-board, tubes, cloth, twine, etc.

Asbestos is also used for fire-proofing woodwork and combustible materials in the vicinity of electric wires and machinery, for lining cut-out and fuse boxes, switches, rheostat cases, etc.

We have for many years made a specialty of the manufacture of Asbestos in all its useful forms, and by continued improvement in processes and the invention of new methods and machinery, are enabled to furnish a great variety of Asbestos products suitable for special purposes.

For the full list of our Asbestos and other goods, see *Descriptive Price List*, for a summary of the contents of which see page 32 of this book.

**Paints, Colors, Etc.**

H. W. JOHNS' LIQUID PAINTS  
 ROOF AND RAILWAY PAINTS  
 FIRE-PROOF PAINTS

LIQUID COACH COLORS  
 COLORS IN OIL  
 SHINGLE AND WOOD STAINS.

**Roofing and Building Materials.**

ASBESTOS ROOFING  
 ROOF COATINGS AND CEMENTS

ASBESTOS BUILDING FELT  
 ASBESTOS SUPERATOR.

ASBESTOS WATER-PROOF SHEATHING.

**Steam Pipe and Boiler Coverings.**

ASBESTO-SPONGE CEMENT FELTING

ASBESTOS SECTIONAL PIPE COVERINGS

ASBESTOS FIRE-FELT, LOCOMOTIVE LAGGING, ETC.

ASBESTO-SPONGE FELT, FILLING, ETC.

ASBESTOS SUPERATOR.

**Steam Packings.**

ASBESTOS ROPE PACKING  
 ASBESTOS WICK PACKING

ASBESTOS SHEET PACKING  
 VULCANIZED ROPE PACKING

ASBESTOS AND RUBBER CLOTH, TAPE, GASKETS, ETC.

**Asbestos Fabrics, Etc.**

ASBESTOS CLOTH FOR THEATRE CURTAINS, ETC.

FIRE-PROOF ROPE FOR FIRE ESCAPES, ETC.

FIRE-PROOF CORD, TWINE, RUGS, MATS, SCREENS, ETC.

**Fire-Proof Cements and Coatings.**

ASBESTOS FURNACE CEMENT  
 ASBESTOS RETORT CEMENT

PLASTIC STOVE LINING  
 CONCRETE COATINGS, ETC.

**Vulcabeston.**

ELECTRICAL INSULATING SHEETS, RINGS, WASHERS, ETC.

MOULDED GASKETS, UNION WASHERS, PACKING RINGS

PUMP VALVES, STEAM PACKING, ETC.

**Moulded Mica.**

ELECTRIC RAILWAY INSULATING MATERIALS, ETC.

**H. W. JOHNS MANUFACTURING COMPANY**

**87 MAIDEN LANE, NEW YORK**

NEW YORK

JERSEY CITY

CHICAGO

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THE WORLD'S COLUMBIAN EXPOSITION  
MEDAL

AWARDED FOR VULCABESTON AND MOULDED MIC  
INSULATING MATERIALS FOR

- 1st—HIGH INSULATION,
- 2nd—STRENGTH.
- 3rd—COMPACTNESS.
- 4th—VARIETY OF CORRECT DESIGNS.

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